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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,076	12/23/2003	Shigemi Wakabayashi	247117US0	8104

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1940 DUKE STREET
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EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/743,076

Applicant(s)

WAKABAYASHI, SHIGEMI

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. All outstanding rejections are overcome by applicant's after-final amendment filed 5/18/06 that has been entered.

In light of the new grounds of rejection as set forth below, the following action is non-final and thus, the finality of the previous office action has been withdrawn.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-3, 5-8, and 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al. (U.S. 5,990,202) in view of WO 2001/96483.

Nguyen et al. disclose ink comprising aqueous dispersion of colorant wherein the colorant comprises water-insoluble dye such as xanthene and polymer obtained from monomers including C₂-C₄₀ alkyl (meth)acrylate, 0-10% salt-forming monomer such as acrylic acid, and monomer copolymerizable with the alkyl (meth)acrylate and salt-forming monomer. The ink also comprises 10-25% co-solvent such as N-methylpyrrolidone or aliphatic alcohol, i.e. permeability controlling solvent (col.1, lines 10-14, col.3, lines 1-7 and 13-22, col.6, lines 12-50, col.8, lines 40-59, col.11, line 59-col.12, line 30, and col.15, lines 37-55). Given that Nguyen et al. disclose polymer obtained from same type and amount of monomers as presently claimed, it is clear that the polymer would intrinsically possess solubility in water as presently claimed.

The difference between Nguyen et al. and the present claimed invention is the requirement in the claims of acid value of the water-insoluble polymer.

WO 2001/96483¹, which is drawn to aqueous ink jet ink, discloses colorant that is hydrophobic dye encapsulated with polymer wherein the polymer has acid value of 20-200. It is disclosed that if the acid value is less than 20, the dispersion stability of the colorant in the aqueous media is insufficient while if the acid value is greater than 200, aggregation readily takes place upon production of the colorant to cause deterioration in ejection stability and nozzle clogging (paragraphs 1, 17, 138, 149, 232, and 233).

In light of the motivation for using polymer with specific acid value disclosed by WO 2001/96483 as described above, it therefore would have been obvious to one of ordinary skill in the art to use polymer with such acid value, including that presently claimed, in Nguyen et al. in order to produce ink that has good dispersion stability as well as good ejection stability and that does not clog the printer nozzles, and thereby arrive at the claimed invention.

4. Claims 1-3 and 5-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gore et al. (U.S. 2003/0055178) in view of Ishizuka et al. (U.S. 2002/0025994) and WO 2001/96483.

Gore et al. disclose ink comprising aqueous dispersion of colorant containing crosslinked polymeric nanoparticles obtained from monomers including C₁₆-C₂₄ alkyl (meth)acrylate, 2-40% salt-forming group containing monomer that is neutralized, and other monomer copolymerizable

¹ It is noted that when utilizing WO 2001/96483, the disclosures of the reference are based on Yatake et al. (U.S. 2003/0106462) which is an English language equivalent of the reference. Therefore, the column and line numbers cited with respect to WO 2001/96483 are found in Yatake et al.

with the alkyl (meth)acrylate and salt-forming monomer and dye wherein the dye is attached to or reacted with the polymeric nanoparticle (paragraphs 2, 8, 14, 16, 35, 38, 51, 53-54, 66, 70, 72, and 88). For further detail regarding the dye, Gore et al. refers to Ishizuka et al. which discloses the use of oil-soluble dye such as quinophthalone or phthalocyanine dyes (paragraphs 16-18). Given that Gore et al. disclose polymer obtained from same type and amount of monomers as presently claimed, it is clear that the polymer would intrinsically possesses solubility in water as presently claimed.

The difference between Gore et al. and the present claimed invention is the requirement in the claims of (a) acid value of the water-insoluble polymer and (b) permeability controlling solvent.

With respect to difference (a), WO 2001/96483, which is drawn to aqueous ink jet ink, discloses colorant that is hydrophobic dye encapsulated with polymer wherein the polymer has acid value of 20-200. It is disclosed that if the acid value is less than 20, the dispersion stability of the colorant in the aqueous media is insufficient while if the acid value is greater than 200, aggregation readily takes place upon production of the colorant to cause deterioration in ejection stability and nozzle clogging (paragraphs 1, 17, 138, 149, 232, and 233).

In light of the motivation for using polymer with specific acid value disclosed by WO 2001/96483 as described above, it therefore would have been obvious to one of ordinary skill in the art to use polymer with such acid value, including that presently claimed, in Gore et al. in order to produce ink that has good dispersion stability as well as good ejection stability and that does not clog the printer nozzles, and thereby arrive at the claimed invention.

With respect to difference (b), WO 2001/96483, discloses the use of 0.5-30% di(tri)ethylene glycol monobutyl ether, i.e. permeability controlling solvent, in order to improve penetration of the ink into substrate and thus, improve print quality (paragraphs 93-94, 103, 105, and 109).


In light of the motivation for using di(tri)ethylene glycol monobutyl ether disclosed by WO 2001/96483 as described above, it therefore would have been obvious to one of ordinary skill in the art to use di(tri)ethylene glycol monobutyl ether in the ink of Gore et al. in order to produce ink with good print quality, and thereby arrive at the claimed invention.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
5/31/06